

LiveVideoStackCon

聚音视 研修不止于形

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北京·丽亭华苑酒店

LiveVideoStackCon

Building Highly Efficient and Scalable RTC Services Based-on Intel® CS for WebRTC

Xiande Duan

Intel Asia and Pacific R&D Ltd

• Functional

- Interoperability
- Adaptability
- Connectivity
- Customization

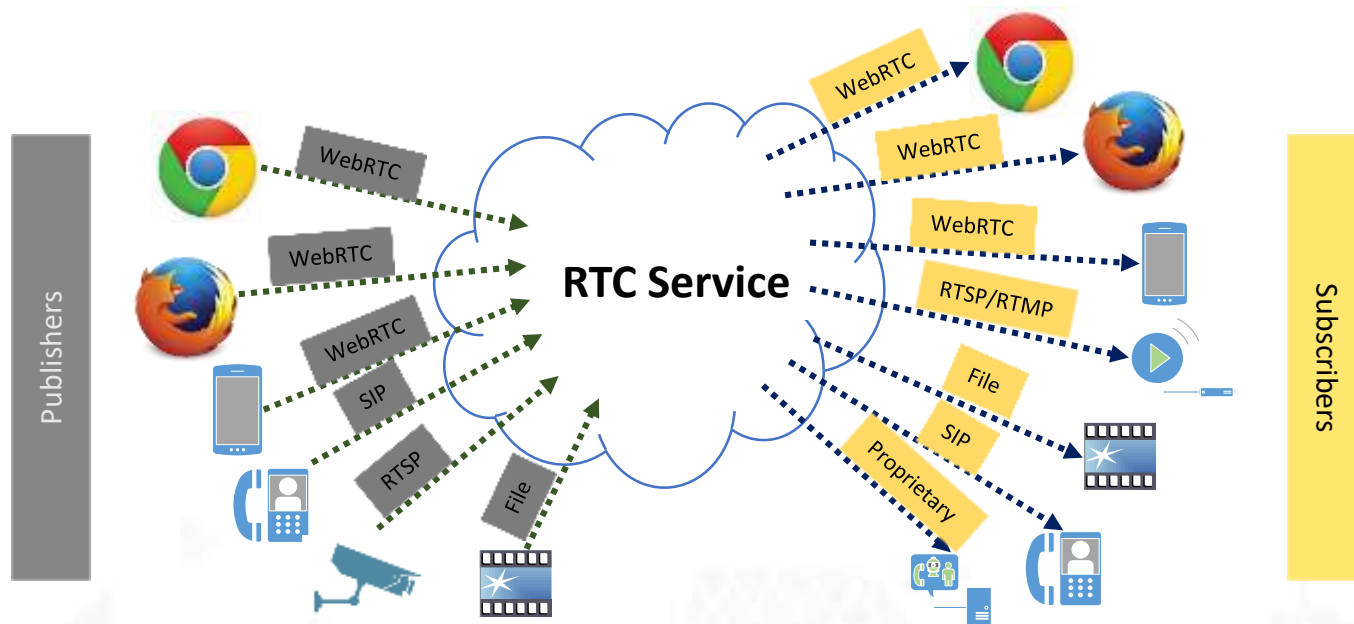
• Non-functional

- Reliability
- Availability

▶ Interoperability

Participants talk in different protocols

- WebRTC, SIP, RTSP/RTMP, etc.
- Various codecs.



Participants through different devices

- Phones, tablets, PC, wearables, etc.
- Domain-specific devices such as class-room systems and medical devices.



Which requires

- Various client SDK.
- And a suite of socket.io/RESTful API.

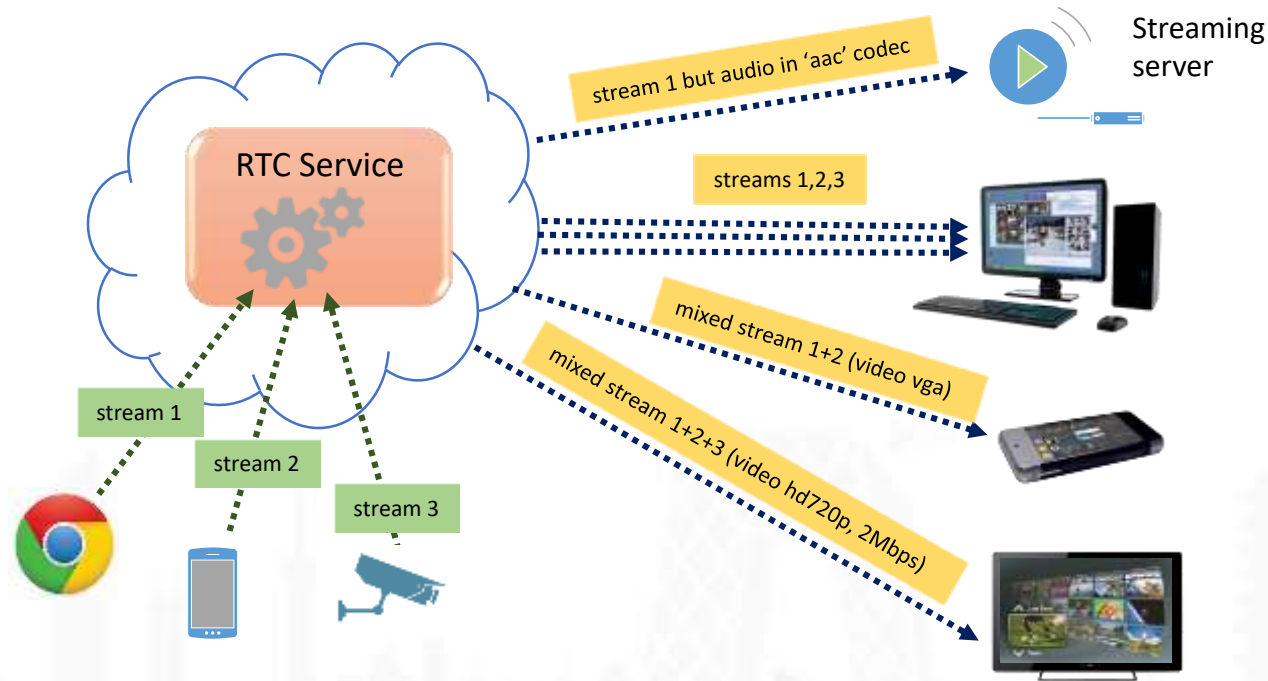
Participants behind complex networks

- NAT traverse
- Nearby access
- Packet loss/jittering handling



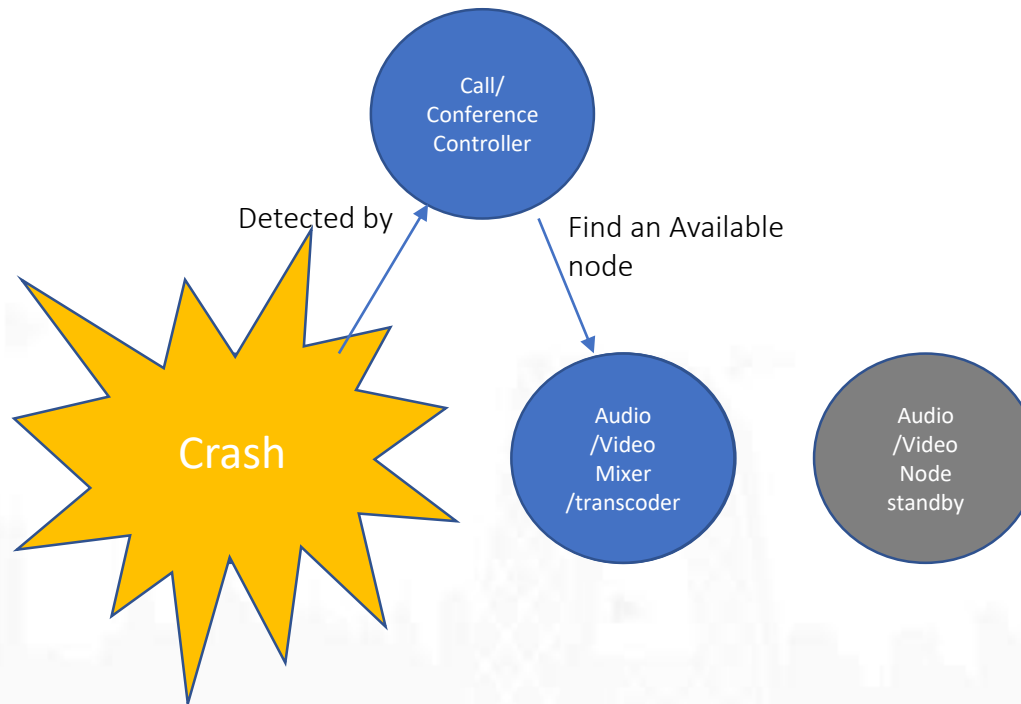
Participants accept/prefer different audio/video formats and parameters

- Audio/video transcoding
- Specifying video parameters
- Multiple-view



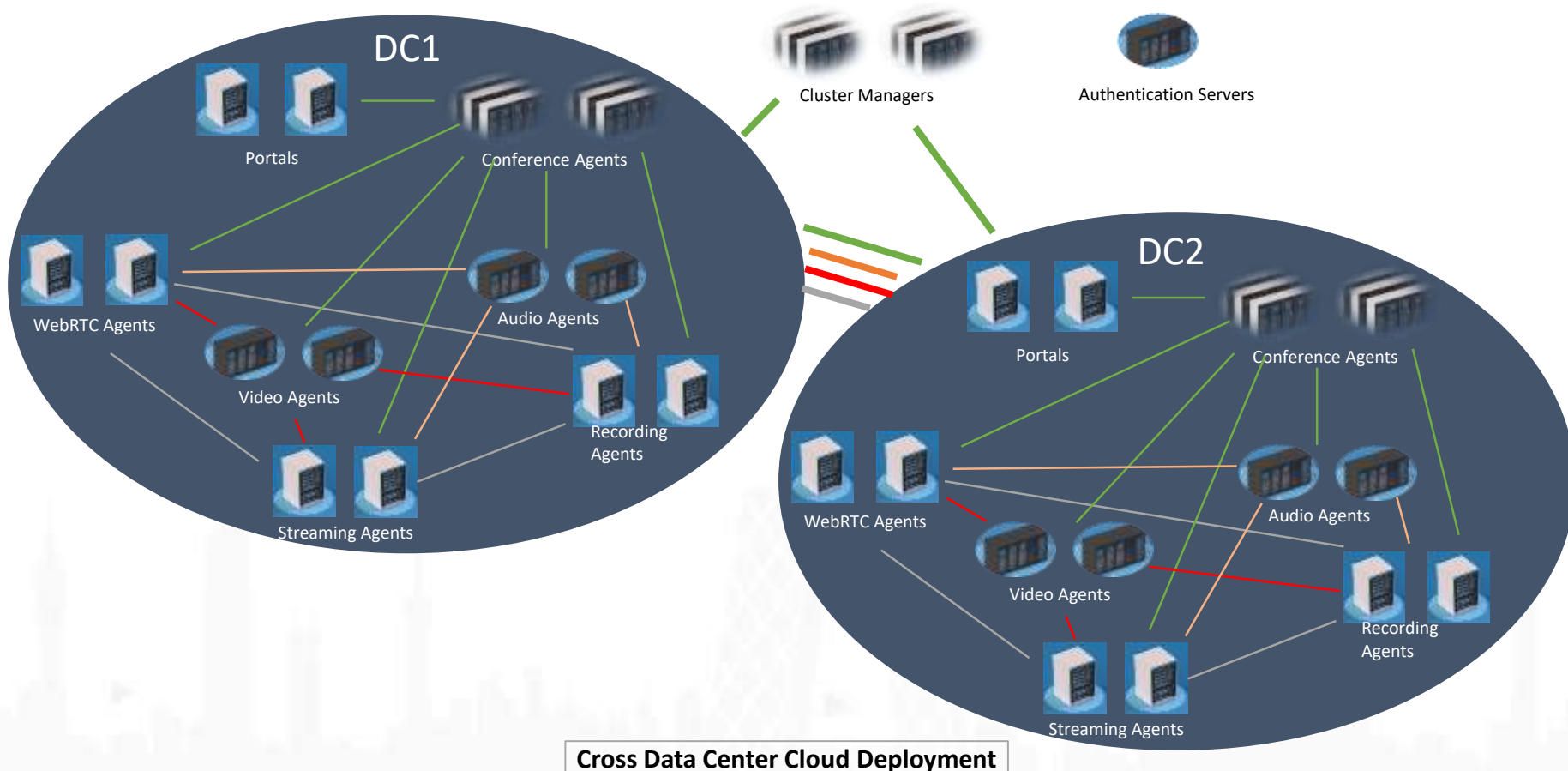
Fault tolerance

- Fault of one call/conference should not impact other calls/conferences
- Fault of media processing nodes should be detected and recovered automatically
- Fault of access nodes should be detected and notified to impacted clients



Clustering deployment with redundancy backup

- Scale in/out on demand
- Customizable scheduling policies



- Decouple components
- Crash-oriented architecture
- Unified control primitives
- General media spreading model

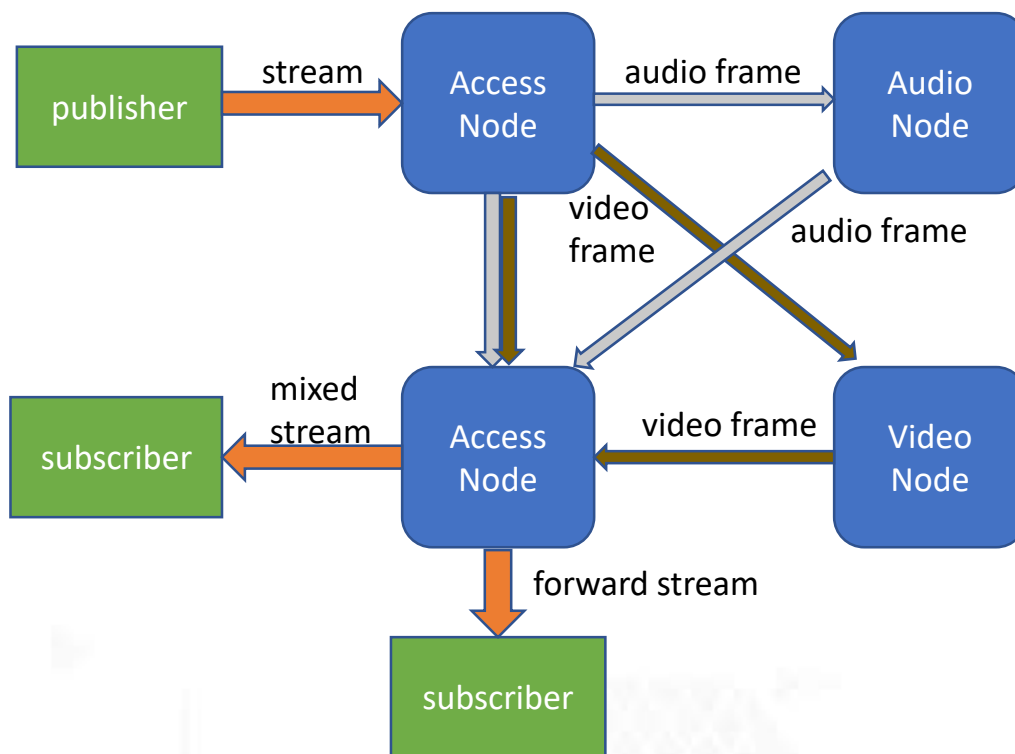
- The IO parts vs. the computation-intensive parts
- The signaling parts vs. the media parts
- The media-access parts vs. the media-processing parts

- Components and the connections among them will always crash if possible
- Isolate components to avoid error propagation
- Monitor and plan for errors
- Recover from errors by redundancy

▶ Control primitives on media components LiveVideoStackCon

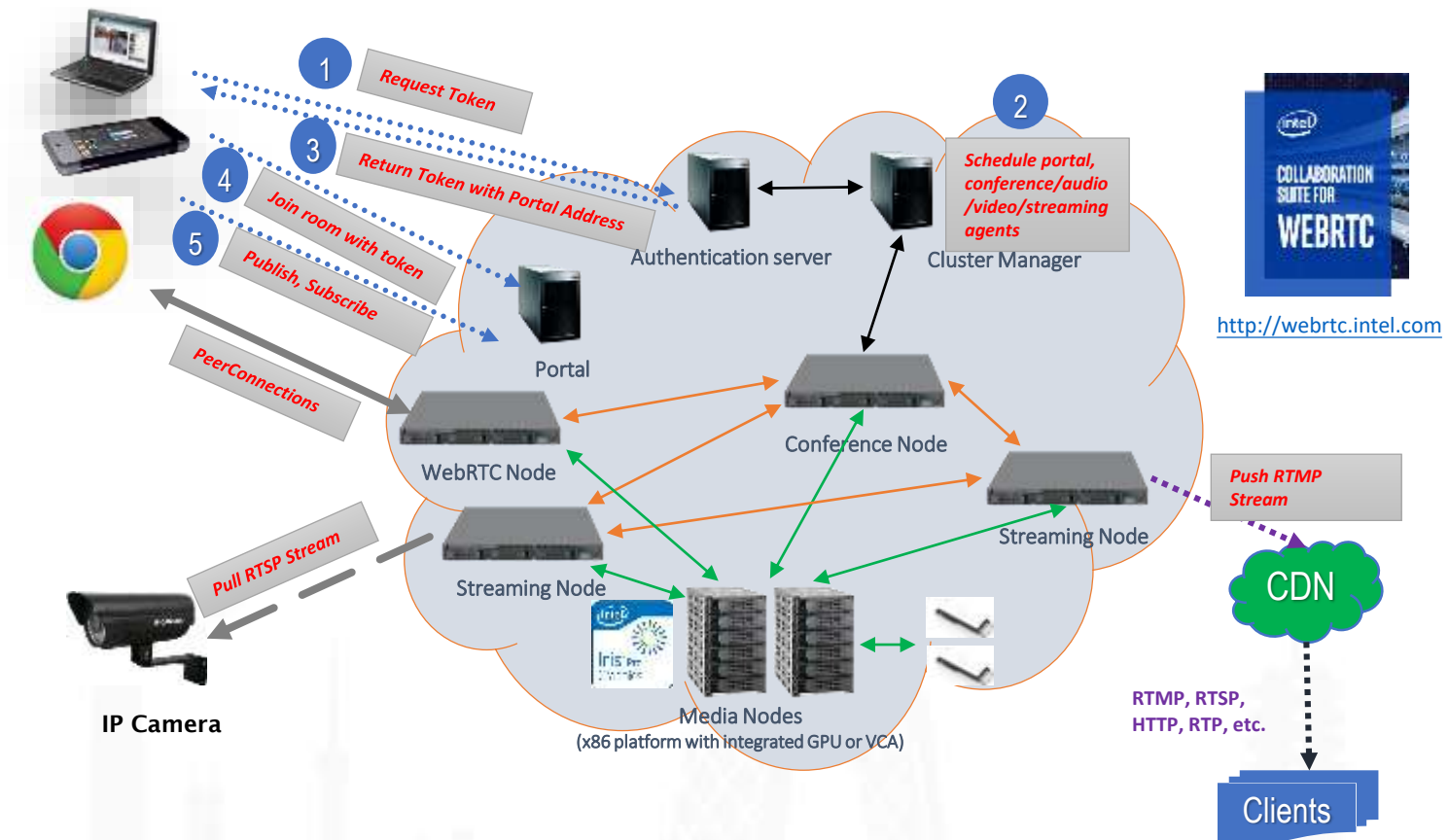
- via RPC over RabbitMQ
- Publish, Unpublish
- Subscribe, Unsubscribe
- Linkup, Cutoff
- Generate, Degenerate

▶ The Stream Spreading Model



▶ A scalable RTC engine

Intel® Collaboration Suite for WebRTC



▶ With high efficiency powered by

Intel® Visual Compute Accelerator 2 Delivering the Visual Cloud. Faster.

Equips Intel® Xeon® Processor E5-based Server Systems with Iris™ Pro Graphics P580 and QuickSync Media Transcode

Outstanding TCO

Rich Ecosystem of Server OEMs, ISV's, and Solutions

Powered by the Intel® Xeon® processor E5



Broadcast: Ultra-high channel density, with high Visual Quality

Virtual Reality: Ultra-dense transcode enables truly immersive User Experiences

Cloud Gaming: Iris™ Pro graphics delivers richly rendered games, on any device, anywhere

Multi-Party Communications: B2B, C2C communications with massive scaling

Media Transcode

Number of real time streams per card @ 30fps		
1080p	H.264 → H.264	44
	H.264 → H.265	39
	H.265 → H.265	21
4K	H.264 → H.264	14
	H.264 → H.265	11
	H.265 → H.265	7



- Interactive show broadcasting-



奇秀直播

- Internet meeting-



爱奇艺会议



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Video Server

- Private/hybrid cloud deployment
- Enhanced functionalities
- Management tools
- Commercial customization development and after-sale service
- Full compatibility with Intel client SDK



Case Study – PaaS by



- For vertical applications

- Interactive classrooms
- Online education



- For video-conferencing and broadcasting

- Sport games narrative and broadcasting

Zealcomm PureRTC™
Video Server

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Thank You

13818916921/(wechat)SanderDuan

xiande.duan@intel.com